Appendix

Applying three-phase current as disclosed in Drawing 7 in JP '518 causes the shift or travel of magnetic poles as show in following Table A1 (the arrow with broken line).

In Table A1, it is assumed that the N-pole points at molten bath when positive electric charge is loaded to an electromagnet, and the variation in the magnetic poles and their strength by time of each magnet at every phase degree of 30° each spitted in the range of the phase degrees of 0° to 360° is demonstrated.

Table A1

Phase (degree) ↓	0°	120°	240°	0°	120°	240°	0°	120°	240°
0	–	SS	NN	–	SS	NN	–	SS	NN
30	N	SS+	N	N	SS+	N	N	SS+	N
60	NN	SS	–	NN	SS	–	NN	SS	–
90	NN+	S	S	NN+	S	S	NN+	S	S
120	NN	–	SS	NN	–	SS	NN	–	SS
150	N	N	SS+	N	N	SS+	N	N	SS+
180	–	NN	SS	–	NN	SS	–	NN	SS
210	S	NN+	S	S	NN+	S	S	NN+	S
240	SS	NN	–	SS	NN	–	SS	NN	–
270	SS+	N	N	SS+	N	N	SS+	N	N
300	SS	–	NN	SS	–	NN	SS	–	NN
330	S	S	NN+	S	S	NN+	S	S	NN+
360	–	SS	NN	–	SS	NN	–	SS	NN

NN+, SS+:Max,. NN, SS:about 90% of Max,. N, S:50% of Max.

In contrast, the arrangement in this invention does not create macroscopic traveling of magnetic poles. For example, when the variation of magnetic poles in the alinement of electromagnets shown in Fig. 2 of the present application is tabulated by copying the manner practiced in the above-mentioned table makes the following table, wherein the differences in y phase, in which x=phase degree of 0°, is 180°.

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Table A2

Phase (degree) ↓	0°	180°	0°	180°	0°	180°	0°	180°
0	–	–	–	–	–	–	–	–
30	N	S	N	S	N	S	N	S
60	NN	SS	NN	SS	NN	SS	NN	SS
90	NN+	SS+	NN+	SS+	NN+	SS+	NN+	SS+
120	NN	SS	NN	SS	NN	SS	NN	SS
150	N	S	N	S	N	S	N	S
180	–	–	–	–	–	–	–	–
210	S	N	S	N	S	N	S	N
240	SS	NN	SS	NN	SS	NN	SS	NN
270	SS+	NN+	SS+	NN+	SS+	NN+	SS+	NN+
300	SS	NN	SS	NN	SS	NN	SS	NN
330	S	N	S	N	S	N	S	N
360	–	–	–	–	–	–	–	–

NN+, SS+: Max, NN, SS: about 90% of Max, N, S: 50% of Max

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